MR53

Dual-band 802.11ac Wave 2 access point with separate radios dedicated to security, RF management, and Bluetooth

High performance 802.11ac Wave 2 wireless

The Cisco Meraki MR53 is a cloud-managed 4x4:4 802.11ac Wave 2 access point with 160 MHz channels and MU-MIMO support. Designed for next-generation deployments in offices, schools, hospitals, shops, and hotels, the MR53 offers high performance, enterprise-grade security, and simple management.

The MR53 provides a maximum of 2.5 Gbps* aggregate frame rate with concurrent 2.4 GHz and 5 GHz radios. A dedicated third radio provides real-time WIDS/WIPS with automated RF optimization, and a fourth integrated radio delivers Bluetooth Low Energy (BLE) scanning and Beaconing.

With the combination of cloud management, high perfomance hardware, multiple radios, and advanced software features, the MR53 makes an oustanding platform for the most demanding of uses - including high-density deployments and bandwidh or performance-intensive applications like voice and high-definition video.

MR53 and Meraki cloud management: A powerful combo

Management of the MR53 is through the Meraki cloud, with an intuitive browser-based interface that enables rapid deployment without time-consuming training or costly certifications. Since the MR53 is self-configuring and managed over the web, it can be deployed at a remote location in a matter of minutes, even without on-site IT staff.

24x7 monitoring via the Meraki cloud delivers real-time alerts if the network encounters problems. Remote diagnostic tools enable imediate troubleshooting over the web so that distributed networks can be managed with a minimum of hassle.

The MR53's firmware is automatically kept up to date via the cloud. New features, bug fixes, and enhancements are delivered seamlessly over the web. This means no manual software updates to download or missing security patches to worry about.

Product Highlights

- 4x4 160 MHz MU-MIMO 802.11ac Wave 2
- 2.5 Gbps dual-radio aggregate frame rate
- 24x7 real-time WIDS/WIPS and spectrum analytics via dedicated third radio
- Integrated Bluetooth Low Energy Beacon and scanning radio
- Enhanced transmit power and receive sensitivity
- Full-time WiFi location tracking via dedicated 3rd radio
- Integrated enterprise security and guest access
- Application-aware traffic shaping
- Optimized for voice and video
- Self-configuring, plug-and-play deployment
- Sleek, low-profile design blends into office environments

Features

Dual–radio aggregate frame rate of up to 2.5 Gbps*

A 5 GHz 4x4:4 radio supporting 160 MHz channel widths and a 2.4 GHz 4x4:4 radio supporting 40 MHz channel widths offer a combined dual–radio aggregate frame rate of 2.5 Gbps*, with up to 1,733 Mbps in the 5 GHz band thanks to 802.11ac Wave 2 and 800 Mbps in the 2.4 GHz band. Technologies like transmit beamforming and enhanced receive sensitivity allow the MR53 to support a higher client density than typical enterprise-class access points, resulting in fewer APs for a given deployment.

Multi User Multiple Input Multiple Output (MU-MIMO)

With support for the 802.11ac Wave 2 standard, the MR53 offers MU-MIMO for more efficient transmission to multiple clients. Especially suited for enviroments with numerous mobile devices, MU-MIMO enables multiple clients to receive data simultanously. This increases the total network perfomance and the improves the end user experience.

Multi-gigabit ethernet

The MR53 has an integrated multigigabit uplink that ensures maximum capacity for this high performance 802.11ac Wave 2 hardware configuration.

Bluetooth Low Energy Beacon and scanning radio

An integrated fourth radio for Bluetooth Low Energy (BLE) provides seamless deployment of BLE Beacon functionality and effortless visibility of BLE devices. The MR53 enables the next generation of location-aware applications while futureproofing your deployment, ensuring it's ready for any new customer engagement strategies.

Automatic cloud-based RF optimization

The MR53's sophisticated and automated RF optimization means that there is no need for the dedicated hardware and RF expertise typically required to tune a wireless network. The RF data collected by the dedicated third radio is continuously fed back to the Meraki cloud. This data is then used to automatically tune the channel selection, transmit power, and client connection settings for optimal performance under even the most challenging RF conditions.

Integrated enterprise security and guest access

The MR53 features integrated, easy-to-use security technologies to provide secure connectivity for employees and guests alike. Advanced security features such as AES hardware-based encryption and WPA2-Enterprise authentication with 802.1X and Active Directory integration provide wire-like security while still being easy to configure. One-click guest isolation provides secure, Internet-only access for visitors. PCI compliance reports check network settings against PCI requirements to simplify secure retail deployments.

Third radio delivers 24x7 wireless security and RF analytics

The MR53's dedicated dual-band scanning and security radio continually assesses the environment, characterizing RF interference and containing wireless threats like rogue access points. There's no need to choose between wireless security, advanced RF analysis, and serving client data - a dedicated third radio means that all functions occur in real-time, without any impact to client traffic or AP throughput.

Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration

Meraki Systems Manager natively integrates with the MR53 to offer automatic, context-aware security. You can use Systems Manager's self-service enrollment to rapidly deploy MDM without installing additional equipment, and then dynamically tie firewall and traffic shaping policies to client posture.

Application-aware traffic shaping

The MR53 includes an integrated layer 7 packet inspection, classification, and control engine, enabling you to set QoS policies based on traffic type. Prioritize your mission critical applications while setting limits on recreational traffic like peer-to-peer and video streaming. Policies can be implemented per network, per SSID, per usergroup, or per individual user for maximum flexibility and control.

Voice and video optmizations

Industry standard QoS features are built in and easy to configure. Wireless Multi Media (WMM) access categories, 802.1p, and DSCP standards support all ensure important applications get priorotized correctly, not only on the MR53, but on other devices in your network. Unscheduled Automatic Power Save Delivery (U-APSD) ensures minimal battery drain on wireless VoIP phones.

Self-configuring, self-maintaining, always up-to-date

When plugged in, the MR53 automatically connects to the Meraki cloud, downloads its configuration, and joins the appropriate network. If new firmware is required, this is retireved by the AP and updated automatically. This ensures the network is kept up-to-date with bug fixes, security updates, and new features.

Advanced analytics

Drill down into the details of your network usage with highly granular traffic analytics. Extend your visibility into the physical world with journey tracking through location analytics. View vistor numbers, dwell time, repeat visit rates, and track trends. Fully customize your analysis with raw data available via simple APIs.

* Refers to maximum over-the-air data frame rate capability of the radio chipset, and may exceed data rates allowed by IEEE 802.11ac-compliant operation.

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Specifications

Radios
2.4 GHz 802.11b/g/n client access radio
5 GHz 802.11a/n/ac client access radio
2.4 GHz & 5 GHz dual-band WIDS/WIPS, spectrum analysis, & location analytics radio
2.4 GHz Bluetooth Low Energy (BLE) radio with Beacon and BLE scanning support
Concurrent operation of all four radios
Supported frequency bands (country-specific restrictions apply): 2.412-2.484 GHz 5.150-5.250 GHz (UNII-1) 5.250-5.350 GHZ (UNII-2) 5.470-5.600, 5.660-5.725 GHz (UNII-2e) 5.725 -5.825 GHz (UNII-3)

Antenna
Integrated omni-directional antennas (5.5 dBi gain @ 2.4 GHz, 6.2 dBi gain @ 5 GHz)
Individual antenna elements for each radio

802.11ac Wave 2 and 802.11n Capabilities
4 x 4 multiple input, multiple output (MIMO) with four spatial streams
SU-MIMO and MU-MIMO support
Maximal ratio combining (MRC) & beamforming
20 and 40 MHz channels (802.11n); 20, 40, 80, and 160 MHz channels (802.11ac)
Up to 256-QAM on both 2.4 GHz & 5 GHz bands
Packet aggregation

Power
Power over Ethernet: 37 - 57 V (802.3at required; functionality-restricted 802.3af mode supported)
Alternative 12 V DC input
Power consumption: 21W max (802.3at)
Power over Ethernet injector and DC adapter sold separately

Interfaces
1x 100/1000/2.5G BASE-T Ethernet & 1x 10/100/1000 BASE-T Ethernet (RJ45)
1x DC power connector (5.5 mm x 2.5 mm, center positive)

Mounting
All standard mounting hardware included
Desktop, ceiling, and wall mount capable
Ceiling tile rail (9/16, 15/16 or 1 ½" flush or recessed rails), assorted cable junction boxes
Bubble level on mounting cradle for accurate horizontal wall mounting

Physical Security
Two security screw options (included)
Kensington lock hard point
Concealed mount plate with anti-tamper cable bay

Environment
Operating temperature: 32 °F to 104 °F (0 °C to 40 °C)
Humidity: 5 to 95% non-condensing

Physical Dimensions
10.56" x 6.38" x 1.58" (268.2 mm x 162.0 mm x 38.8 mm), not including deskmount feet or mount plate
Weight: 29.6 oz (840g)

Security
Integrated Layer 7 firewall with mobile device policy management
Real-time WIDS/WIPS with alerting and automatic rogue AP containment with Air Marshal
Flexible guest access with device isolation
VLAN tagging (802.1q) and tunneling with IPsec VPN
PCI compliance reporting
WEP, WPA, WPA2-PSK, WPA2-Enterprise with 802.1X
EAP-TLS, EAP-TTLS, EAP-MSCHAPv2, EAP-SIM
TKIP and AES encryption
Enterprise Mobility Management (EMM) & Mobile Device Management (MDM) integration
Cisco ISE integration for Guest access and BYOD Posturing

Quality of Service
Advanced Power Save (U-APSD)
WMM Access Categories with DSCP and 802.1p support
Layer 7 application traffic identification and shaping

Mobility
PMK, OKC, & 802.11r for fast Layer 2 roaming
Distributed or centralized layer 3 roaming

Analytics
Embedded location analytics reporting and device tracking
Global L7 traffic analytics reporting per network, per device, & per application

Warranty
Lifetime hardware warranty with advanced replacement included

Ordering Information
MR53-HW: Meraki MR53 Cloud Managed 802.11ac AP
MA-PWR-30W-XX: Meraki AC Adapter for MR Series (XX = US/EU/UK/AU)
MA-INJ-5-XX: Meraki Multigigabit 802.3at Power over Ethernet Injector (XX = US/EU/UK/AU)
Note: Meraki access point license required.

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Compliance & Standards

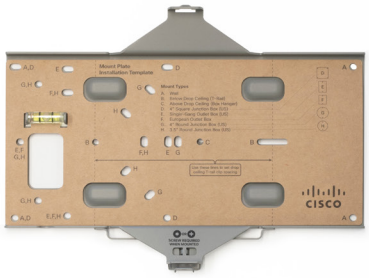
IEEE Standards
802.11b
802.11g
802.11a
802.11n
802.11ac
802.11h
802.11i
802.11e
802.11k
802.11r
802.11u

Safety Approvals
UL 60950-1
CAN/CSA-C22.2 No. 60950-1
IEC 60950-1
EN 60950-1
UL 2043 (Plenum Rating)

Radio Approvals
FCC Part 15C, 15E
RSS-247 (Canada)
EN 300 328, EN 301 893 (Europe)
AS/NZS 4268 (Australia/NZ)
NOM-121 (Mexico)
NCC LP0002 (Taiwan)
For additional country-specific regulatory information, please contact Meraki sales

EMI Approvals (Class B)
FCC Part 15B
ICES-003 (Canada)
EN 301 489-1-17, EN 55032, EN 55024 (Europe)
CISPR 22 (Australia/NZ)
VCCI (Japan)

Exposure Approvals
FCC Part 2
RSS-102 (Canada)
EN 50385, EN 62311, EN 62479 (Europe)
AS/NZS 2772 (Australia/NZ)



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RF Performance Table

Operating Band	Operating Mode	Data Rate	TX Power	RX Sensitivity
2.4 GHz	802.11b	1 Mb/s	19 dBm	-98 dBm
		2 Mb/s	19 dBm	-93 dBm
		5.5 Mb/s	19 dBm	-92 dBm
		11 Mb/s	19 dBm	-87 dBm
2.4 GHz	802.11g	6 Mb/s	19 dBm	-92 dBm
		9 Mb/s	19 dBm	-91 dBm
		12 Mb/s	18 dBm	-90 dBm
		18 Mb/s	18 dBm	-88 dBm
		24 Mb/s	18 dBm	-85 dBm
		36 Mb/s	18 dBm	-82 dBm
		48 Mb/s	17 dBm	-76 dBm
		54 Mb/s	17 dBm	-75 dBm
2.4 GHz	802.11n (HT20)	MCS0/8/16	19/22/23/27 dBm	-92/-95/-96/-98 dBm
		MCS1/9/17	18/21/22/24 dBm	-88/-91/-92/-94 dBm
		MCS2/10/18	18/21/22/24 dBm	-86/-89/-90/-92 dBm
		MCS3/11/19	17/20/21/23 dBm	-82/-85/-86/-88 dBm
		MCS4/12/20	17/20/21/23 dbm	-80/-83/-84/-86 dBm
		MCS5/13/21	16/19/20/25 dBm	-75/-78/-79/-81 dBm
		MCS6/14/22	15/18/19/21 dBm	-73/-76/-77/-79 dBm
		MCS7/15/23	15/18/19/21 dBm	-72/-75/-76/-78 dBm

RF Performance Table

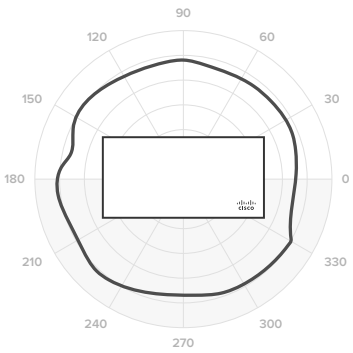
Operating Band	Operating Mode	Data Rate	TX Power	RX Sensitivity
5 GHz	802.11a	6 Mb/s	20 dBm	-91 dBm
		9 Mb/s	20 dBm	-90 dbm
		12 Mb/s	20 dBm	-89 dbm
		18 Mb/s	20 dBm	-87 dBm
		24 Mb/s	19 dBm	-80 dBm
		36 Mb/s	19 dBm	-77 dBm
		48 Mb/s	18 dBm	-75 dBm
		54 Mb/s	18 dBm	-74 dBm
5 GHz	802.11n (HT20)	MCS0/8/16	20/23/24 dBm	-91/-94/-95 dBm
		MCS1/9/17	20/23/24 dBm	-88/-91/-92 dBm
		MCS2/10/18	20/23/24 dBm	-85/-88/-89 dBm
		MCS3/11/19	20/23/24 dBm	-82/-85/-86 dBm
		MCS4/12/20	19/22/23 dBm	-78/-81/-82 dBm
		MCS5/13/21	19/22/23 dBm	-74/-77/-78 dBm
		MCS6/14/22	18/21/22 dBm	-71/-74/-75 dBm
		MCS7/15/23	17/20/21 dBm	-72/-75/-76 dBm
5 GHz	802.11n (HT40)	MCS0/8/16	20/23/24 dBm	-88/-91/-92 dBm
		MCS1/9/17	20/23/24 dBm	-85/-88/-89 dBm
		MCS2/10/18	20/23/24 dBm	-83/-86/-87 dBm
		MCS3/11/19	20/23/24 dBm	-79/-82/-83 dBm
		MCS4/12/20	19/22/23 dBm	-76/-79/-80 dBm
		MCS5/13/21	19/22/23 dBm	-73/-76/-77 dBm
		MCS6/14/22	18/21/22 dBm	-72/-75/-76 dBm
		MCS7/15/23	17/20/21 dBm	-70/-73/-74 dBm

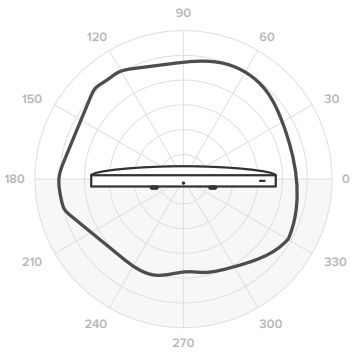
RF Performance Table

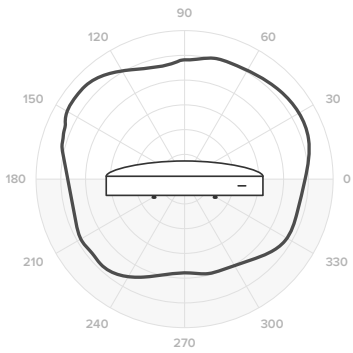
Operating Band	Operating Mode	Data Rate	TX Power	RX Sensitivity
5 GHz	802.11ac (VHT20)	MCS0/0/0/0	20/23/24/26 dBm	-91/-94/-95/-97 dBm
		MCS1/1/1/1	20/23/24/26 dBm	-88/-91/-92/-94 dBm
		MCS2/2/2/2	20/23/24/26 dBm	-85/-88/-89/-91 dBm
		MCS3/3/3/3	20/23/24/26 dBm	-82/-85/-86/-88 dBm
		MCS4/4/4/4	19/22/23/25 dBm	-78/-81/-82/-84 dBm
		MCS5/5/5/5	19/22/23/25 dBm	-74/-77/-78/-80 dBm
		MCS6/6/6/6	18/21/22/24 dBm	-71/-74/-75/-77 dBm
		MCS7/7/7/7	17/20/21/23 dBm	-72/-75/-76/-78 dBm
		MCS8/8/8/8	16/19/20/22 dBm	-66/-69/-70/-72 dBm
		MCS9/9/9/9	15/18/19/21 dBm	-62/-65/-66/-68 dBm
5 GHz	802.11ac (VHT40)	MCS0/0/0/0	20/23/24/26 dBm	-88/-91/-92/-94 dBm
		MCS1/1/1/1	20/23/24/26 dBm	-85/-88/-89/-91 dBm
		MCS2/2/2/2	20/23/24/26 dBm	-83/-86/-87/-89 dBm
		MCS3/3/3/3	20/23/24/26 dBm	-79/-82/-83/-85 dBm
		MCS4/4/4/4	19/22/23/25 dBm	-76/-79/-80/-82 dBm
		MCS5/5/5/5	19/22/23/25 dBm	-73/-76/-77/-79 dBm
		MCS6/6/6/6	18/21/22/24 dBm	-72/-75/-76/-78 dBm
		MCS7/7/7/7	17/20/21/23 dBm	-70/-73/-74/-76 dBm
		MCS8/8/8/8	16/19/20/22 dBm	-63/-66/-67/-69 dBm
		MCS9/9/9/9	15/18/19/21 dBm	-60/-63/-64/-66 dBm
5 GHz	802.11ac (VHT80)	MCS0/0/0/0	20/23/24/26 dBm	-85/-88/-89/-91 dBm
		MCS1/1/1/1	20/23/24/26 dBm	-81/-84/-85/-87 dBm
		MCS2/2/2/2	20/23/24/26 dBm	-79/-82/-83/-85 dBm
		MCS3/3/3/3	20/23/24/26 dBm	-76/-79/-80/-82 dBm
		MCS4/4/4/4	19/22/23/25 dBm	-72/-75/-76/-78 dBm
		MCS5/5/5/5	19/22/23/25 dBm	-68/-71/-72/-74 dBm
		MCS6/6/6/6	18/21/22/24 dBm	-66/-69/-70/-72 dBm
		MCS7/7/7/7	17/20/21/23 dBm	-65/-68/-69/-71 dBm
		MCS8/8/8/8	16/19/20/22 dBm	-61/-64/-65/-67 dBm
		MCS9/9/9/9	15/18/19/21 dBm	-59/-62/-63/-65 dBm
5 GHz	802.11ac (VHT80P80/VHT160)	MCS0	20 dBm	-82 dBm
		MCS1	20 dBm	-78 dBm
		MCS2	19 dBm	-76 dBm
		MCS3	19 dBm	-73 dbm
		MCS4	19 dBm	-69 dBm
		MCS5	19 dBm	-65 dBm
		MCS6	18 dBm	-63 dBm
		MCS7	17 dbm	-62 dBm
		MCS8	16 dBm	-58 dBm
		MCS9	15 dBm	-56 dbm

Signal Coverage Patterns

Radiation Pattern for 2.4GHz Antennas







Radiation Pattern for 5GHz Antennas